

## CLAIMS

1. (Original) A method of transforming a product development process to reduce time in bringing a product to market, the method comprising the steps of:

- (a) modeling in Silico a plurality of component molecular models;
- (b) deriving in Silico molecular characteristics (descriptors) for each of said plurality of compiled molecular models;
- (c) formulating a plurality of compositions according to compositional characteristics;
- (d) bench testing the compositions; and
- (e) correlating the compositions to actual engine performance.

2. (Original) The method of claim 1, wherein said step (a) is performed via quantum mechanical (QM) approach.

3. (Original) The method of claim 1, wherein said step (b) is performed by building up a quantitative Structure Activity relationship (QSAR) library.

4. (Original) The method of claim 1, wherein in step(c) said plurality of compositions is first formulated in Silico and then physically.

5. (Original) The method of claim 1, wherein said step(c) further comprising:  
creating at least one combinatorial library database record for each of said compositions, said at least one record having a plurality of fields for storing information about compositional characteristics.

6. (Original) The method of claim 5, wherein said information includes:

a type and amount of at least one base oil of lubricating viscosity,

a type and amount of at least one lubricating oil additive,

a lubricating viscosity;

a lubricating oil additive percentage, and

storage stability of said compositions.

7. (Original) The method of claim 5, further comprising receiving specification requirements for a lubricating oil composition.

8. (Original) The method of claim 7, further comprising:

selecting from a database entries corresponding to compositions having specifications comparable to the received specification requirements;

formulating a new lubricating oil composition to comply with received specification requirements;

testing said new lubricating oil composition for compliance with received specification requirements; and

repeating said selecting, formulating, and testing steps until compliance with received specification requirements is achieved.

9. (Original) The method of claim 1, further comprising comparing the outcome of every step and repeating a previous step if said outcome does not comply with said received specification requirements for a lubricating oil composition.

10. (Original) A method of transforming a product development process to reduce time in bringing a product to market through high throughput experimentation and advanced statistics and informatics, to transform the product development to a level of higher correlation with engine tests and to develop better commercial products, the method comprising the steps of:

modeling in Silico a plurality of component molecular models;

deriving in Silico molecular characteristics (descriptors) for each of said plurality of component molecular models;

creating at least one combinatorial library database record for each of said models, said at least one record having a plurality of fields for storing information about compositional characteristics.

receiving specification requirements for a lubricating oil composition;

selecting from a database entries corresponding to compositions having specifications comparable to the received specification requirements;

formulating a new lubricating oil composition to comply with received specification requirements;

testing said new lubricating oil composition for compliance with received specification requirements;

repeating said selecting, formulating, and testing steps until compliance with received specification requirements is achieved; and

correlating the lubricating oil composition to actual engine performance.

11. (Original) A system of transforming a product development process to reduce time in bringing a product to market through high throughput experimentation and advanced statistics and informatics, to transform the product development to a level of higher correlation with engine tests and to develop better commercial products, the system comprising:

modeling means for in Silico modeling a plurality of component molecular models;

deriving means for in Silico deriving molecular characteristics (descriptors) for each of said plurality of component molecular models;

creating means for creating at least one combinatorial library database record for each of said models, said at least one record having a plurality of fields for storing information about compositional characteristics;

receiving means for receiving specification requirements for a lubricating oil composition;

selecting means for selecting from a database entries corresponding to compositions having specifications comparable to the received specification requirements;

formulating means for formulating a new lubricating oil composition to comply with received specification requirements;

testing means for testing said new lubricating oil composition for compliance with received specification requirements; and,

correlating means for correlating the lubricating oil composition to actual engine performance.